



TEL AVIV UNIVERSITY
אוניברסיטת תל-אביב

2013
Annual Report

EARTH WATER AIR FIRE LIFE

CONTENTS

Messages	2
Environment University	4
Reports	24
TAU Officers	25
New Projects	26
Top National Prizes	28
Distinctions	29
Interdisciplinary Research	30
International Initiatives	33
Alumni	35
Campus-Wide R&D	36
Community	39
Teaching	40
TAU Friends Contact Details	42

Which institution is applying its interdisciplinary might to the world's environmental dilemmas?

**It's elemental.
It's Tel Aviv University.**





Chairman's Message

Isn't it great to join a winning team?

Since I assumed office as Chairman of the Board of Governors in January 2013, I have been impressed and inspired by the winning spirit of Tel Aviv University's faculty, staff, students, management, governors and broad network of dedicated supporters. Binding everyone together is a shared sense of purpose: To advance Tel Aviv University – the shining face of 21st century Israel. An Israel based on knowledge and excellence. An Israel that strengthens the Jewish people through inclusivity and pluralism, and that is the true fulfilment of our Zionist dreams.

Part of the pull of this great university is our location in Tel Aviv-Yafo, which was recently ranked as the 2nd most innovative city in the world by the Wall Street Journal. Feeding and nurturing this innovation is our dynamic Tel Aviv University, a magnet for young creative people from across Israel and the globe.

The University, the city, the state, our worldwide Jewish community – we are all united in the mission to build up Israel's human capital through pioneering research and teaching across the disciplines. This activity strengthens Israeli society and contributes positively to the prosperity of the State of Israel and its standing in the world at large.

To fulfil our common mission, we need creative thinking and heightened efforts to bring greater resources to Tel Aviv University. I see challenges and also great opportunities ahead. I look forward to working hand-in-hand with our governors, friends, and TAU's academic and administrative leadership to steer our winning University to ever-greater success.

A handwritten signature in black ink that reads "Jacob Frenkel". The signature is fluid and cursive.

Prof. Jacob A. Frenkel
Chairman, Board of Governors
Tel Aviv University

When city leaders in Nanjing, China, were looking for an institution to train 1,000 managers in entrepreneurship, they chose Tel Aviv University. When Tata, the Indian industry giant, sought to invest in innovative R&D, it chose Tel Aviv University. Harvard in astrophysics, Johns Hopkins in epidemiology, Cambridge in religious studies, Tsinghua in nanoscience – they have all chosen to partner with Tel Aviv University.

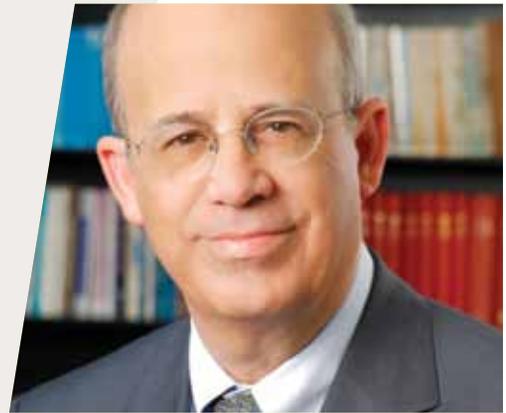
This past year saw an explosion of international activity, both on campus and abroad, demonstrating the University's heightened global reputation and increasing reach. Through our ever-expanding research collaborations, faculty and student exchange, international study programs, and technology transfer, Tel Aviv University plays a defining role in exporting Israeli know-how and importing talent and expertise.

Other major developments in 2012-13 include the recruitment of 70 outstanding new researchers, a record intake, and the establishment of 7 new Israeli Centers of Research Excellence (I-COREs) either led by, or involving, Tel Aviv University scholars and scientists. Our new 1,700-bed dormitory complex, Student City, is sprouting rapidly and will already accept its first residents this October.

An institution that wishes to stay bold and competitive must continually evolve. With this in mind, the University's academic and public leadership has embarked on a strategic planning process for where we need to be by 2020. As yet there are perhaps more questions than answers. But the University is privileged and lucky to have talented managers, faculty members and supporters who are eager to take part in fashioning TAU's future. Together we will take Tel Aviv University to the next stage.



Prof. Joseph Klafter
President
Tel Aviv University



President's Message



EARTH WATER AIR FIRE LIFE

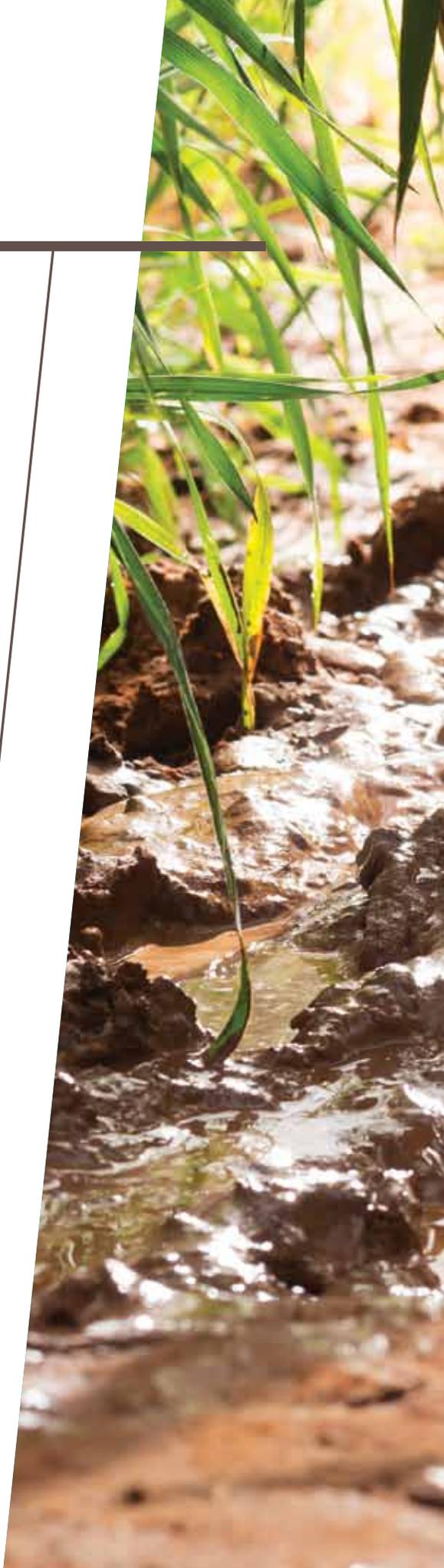


Feeding the hungry

Master's student Moran Nave and the rest of the team led by Dr. Assaf Distelfeld are cultivating a super wheat. Not only would this wheat be the secret ingredient for the best fettuccine and focaccia ever, but it would also help feed the ever-growing number of hungry mouths around the world.

Recruited recently from UC Davis in California, Distelfeld has designed and planted the campus's first wheat field. His team is applying new genomic technologies to bread and pasta wheat to create especially high-yield, pest-resistant and nutrient rich varieties. Distelfeld's research has garnered interest from the Israeli Ministry of Agriculture and the Israel Science Foundation.

/ Dr. Assaf Distelfeld is part of Israel's first Program in Food Security and Safety at TAU's Manna Center for Plant Biosciences, headed by Prof. Danny Chamovitz.





Earth /



Helping dirt stay put

Prof. Marcelo Sternberg and colleagues in Israel and Spain have developed a new soil protection technique that could significantly reduce erosion in areas ravaged by forest fires. Working with an organic polymer originally used in agriculture, the researchers have tested their method in the lab and in fire-damaged areas in Israel's Birya forest. Preliminary results show that the technology not only reduces soil loss by 50% but also accelerates the forest's natural processes of recovery and regeneration.

Prof. Marcelo Sternberg is a plant ecologist at TAU's George S. Wise Faculty of Life Sciences.



A planet and its plants under siege

How do plants adapt to shifting climatic conditions? What mechanisms do they employ to survive when changes in soil and temperature take place? These questions and more are being answered by researchers at the new, government-funded Israel National Center for Plant Adaptation to a Changing Environment, led by Prof. Hillel Fromm. The Center's mission is to better understand the mechanisms underlying plant adaptation to environmental stresses by addressing the key molecular, cellular, genetic and physiological aspects at play. Given the tangible effects of climate change and growing resource scarcity in the world today, the research is extremely pertinent to plant survival in the future.

✓ Plant geneticist Prof. Hillel Fromm is a member of the George S. Wise Faculty of Life Sciences.

Tsunami warning

According to historical data, 23 tsunamis have struck the eastern Mediterranean in the past 3,500 years. What caused them? And could it happen again? TAU's Prof. Shmuel Marco is finding vital geological clues in rock layers – or geological folds – along Israel's coastline that provide physical evidence of past tsunamis. He analyzes the unique folds and crumbled rock to understand causes and possible future risks to the region. While strong tsunamis are commonly triggered by earthquakes at sea, several of the eastern Mediterranean occurrences apparently originated on land, due to seismic activity along the Dead Sea Fault.

Marco's study numbers among several dozen being carried out by TAU's newly established Mediterranean Sea Studies Center, jointly set up with Ruppin Academic Center. Spanning disciplines and time periods, the center brings together over 50 scientists and scholars for collaborative research on environmental, ecological, economic and historical topics.

✓ Prof. Shmuel Marco specializes in neotectonics and paleo- and archaeo-seismology at the Raymond and Beverly Sackler Faculty of Exact Sciences.





Water /



Clean water for all

Up to 90 percent of the drugs people take eventually appear in wastewater. If this water seeps into lakes, streams and coastlines, it can poison marine life and contaminate potential sources of drinking water. In response to the urgent need for more effective water treatment, Prof. Dror Avisar and Dr. Hadas Mamane have set up two unique laboratories: one led by Avisar for investigating the physical and chemical behavior of pharmaceuticals as they break down in water, and the other led by Mamane for the development of novel water technologies.

Using advanced oxidation processes, the research partners have developed techniques for purifying wastewater for household and agricultural uses. They have also designed a new pH-modified UV treatment process that strips drug residues and pesticides from wastewater right at the source – hospitals and manufacturing plants.

/ Water experts Prof. Avisar, Lester and Sally Entin Faculty of Humanities, and Dr. Mamane, Iby and Aladar Fleischman Faculty of Engineering, have been collaborating for seven years.

Engineering PhD candidate Ines Zucker at the Environmental Engineering Laboratory



Experiments in cross-cultural cinema

TAU's film school spearheaded a cinematic collaboration between Israelis and Palestinians called "Water," which premiered at the University-sponsored 2012 Tel Aviv International Student Film Festival. Also screened at the 69th Venice Film Festival, the series of seven films was created by mixed Israeli-Palestinian crews. The collaborative process of filming, editing and producing the films together was itself documented, and played a key role of the "experiment" of using film to bridge ethnic and national divides.

As TAU's Yael Perlov, the project's initiator and artistic director, said: "I tried to create films that weren't just political statements, but ones that transcended slogans and propaganda. I wanted them to reflect – bravely, honestly, emotionally – the reality we live in."

/// The "Water" project was supported by TAU's Department of Film and Television, Yolanda and David Katz Faculty of the Arts; the Rabinovich Foundation for the Arts; the US Embassy; and the Geshar Multicultural Film Fund.

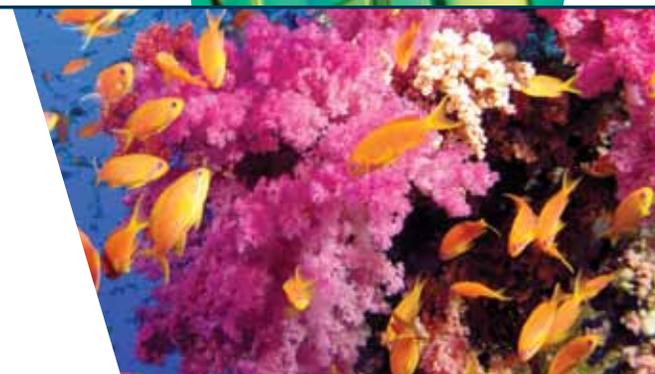
Green chemistry: The water solution

Organic solvents used in the manufacturing of paints, glues, cleaning materials, dyes, plastics, drugs and other products pose serious environmental and health risks. According to Prof. Arkadi Vigalok, solvents account for up to 80% of chemical waste. His team of “green chemists” is searching for ways to significantly reduce this hazardous byproduct. Rather than using organic solvents, Vigalok has discovered methods of using water – simple H₂O – as the sole medium in chemical reactions for truly clean, green and 100 percent sustainable solutions.

Prof. Vigalok is a member of the Raymond and Beverly Sackler Faculty of Exact Sciences.



Keeping coral colorful



Prof. Eugene Rosenberg has developed an innovative treatment for coral infected with white plague disease – a bacterium that bleaches and kills these sensitive marine invertebrates. The disease has affected coral reefs from the United States and the Caribbean to the Red Sea in Israel. Basing his treatment on a method originally developed to cure bacterial infections in humans, Rosenberg is deliberately exposing the white plague bacteria to a virus that kills them off without harming anything else in the surroundings. Field experiments in the Gulf of Eilat have already shown the success of this treatment in both stopping the progression of the disease in infected corals and preventing its spread to surrounding healthy corals.

Prof. Rosenberg collaborates with Dr. Ilil Atad and zoologist Prof. Yossi Loya, all of the George S. Wise Faculty of Life Sciences. The research draws on TAU's Steinhardt National Collections of Natural History.

Catch the wind!

Imagine a little wind farm on your roof. Prof. Avi Seifert, together with Prof. Touvia Miloh, the Lazarus Brothers Chair of Aerodynamics, and Prof. Avi Kribus, is developing innovative technologies for smaller, quieter, more efficient wind turbines that can be situated in urban environments and generate energy even when wind speeds are low. Utilizing unique wind-flow sensors and wind current activators, the research partners aim to increase turbine performance significantly and revolutionize the use of wind energy in daily life.

Prof. Seifert, Miloh and Kribus of the School of Mechanical Engineering, Iby and Aladar Fleischman Faculty of Engineering, are affiliated with TAU's Center for Renewable Energy.





TEL AVIV UNIVERSITY
אוניברסיטת תל-אביב

2013
Annual Report

EARTH
WATER
AIR
FIRE
LIFE

Air /





You are what you breathe

Living in areas of high air pollution increases the risk of repeated heart attacks and stroke. In a 19-year study supported by Israel's Environment and Health Fund, a team led by Dr. Yariv Gerber followed 1,120 Israeli cardiac patients while measuring air quality at 21 monitoring stations located near the subjects' homes. The aim was to quantify the long-term effects of pollution on heart attack sufferers. The TAU team discovered that patients exposed to high air pollution were 30 percent more likely to die and 50 percent more likely to suffer repeated cardiac events than those exposed to lower levels of pollution. Their findings signify the urgent need for nations to curb industrial emissions and accelerate environmental awareness campaigns.

/ Epidemiologist Dr. Gerber and his collaborator, senior cardiologist Prof. Yaacov Drory, are members of the Sackler Faculty of Medicine.

Nipping allergy season in the bud



Up to 30% of the world's population suffers from airborne allergens like pollen and dust. Now, a newly identified protein group could potentially stop allergic reactions before they start. While medications like antihistamines treat the symptoms of an allergic reaction, they do not block it at the source. Prof. Ronit Sagi-Eisenberg and her team have been investigating the chain of events that triggers an immune response in the body and causes an allergic reaction. They have identified a family of 30 proteins that plays a role in how cells react to an allergen and believe that two of the proteins could be used in preventive medications. With the prevalence of allergic diseases rising in both developed and developing countries, this research offers new hope to snifflers and sneezers everywhere.

/ Prof. Sagi-Eisenberg is a cell biologist at TAU's Sackler Faculty of Medicine.



Hydrogen gas goes green

Hydrogen is the cleanest, least polluting and most abundant energy source on the planet. For years, scientists have been looking to green algae, which release hydrogen during photosynthesis, as a potential fuel source. Yet the amount of gas algae produce naturally has remained insignificant – until now. Dr. Iftach Yacoby has discovered a way of bioengineering algae to produce 400 percent more hydrogen than they would in their natural state. Yacoby's team is now working to make the process commercially viable.

/ Recently recruited from MIT, Dr. Yacoby (pictured above) heads the new Laboratory for Renewable Energy Studies at the George S. Wise Faculty of Life Sciences.



TEL AVIV UNIVERSITY
אוניברסיטת תל אביב

2013
Annual Report

EARTH WATER AIR FIRE LIFE

Fire /





Great balls of fire

In the aftermath of raging thunderstorms, earthquakes, volcanic activity and tornadoes, eyewitnesses have described a rare phenomenon: a fiery sphere bouncing across the ground, spinning in the sky and even passing through closed windows. Science has termed this effect "ball lightning," but its nature remains a mystery. How can such spontaneous, rare occurrences be studied? Prof. Eli Jerby and his team have succeeded in creating fireballs in the lab in a bid to replicate, study and unlock the enigma of ball lightning, as well as to explore potential applications such as ignition, combustion and energy generation.

Electrical engineer Prof. Jerby is a member of the Iby and Aladar Fleischman Faculty of Engineering.

Engineering master's student Eli Aharoni at the Research Laboratory for Microwave-Matter Interactions



Galvanizing the grassroots

Ein Hod, an artist's village in northern Israel, was ravaged by the Carmel forest fire of 2010. Now, TAU master's student Yoav Egozi is helping residents accelerate the village's recovery. In a first for Israel, Egozi is applying a UK-developed community action model, called the Transition Initiative, which organizes local responses to pressures from disasters, climate change, dwindling fossil fuel reserves, or economic crises. Egozi is drawing on theories of grassroots innovation and examining the factors that influence Ein Hod residents to take action, all in cooperation with a core group of local residents. They, like him, believe in the power of communities to respond effectively and imaginatively to natural and man-made calamities.

✓ Egozi is a Smaller-Winnokow Scholar at TAU's Porter School of Environmental Studies.

Zeus's warning

Every single degree Celsius increase in global warming will cause 10 percent more lightning activity, predicts Prof. Colin Price, one of the world's leading experts on thunderstorms. The impact of increased lightning will be especially hard felt in warmer areas, including the Mediterranean and the southern United States. Price and his colleagues came to this conclusion after running computer climate models and studying real-life phenomena such as the El Nino cycle in Indonesia and Southeast Asia. They found that not only does climate change affect the frequency of lightning storms, but lightning itself may contribute to global warming by producing nitrogen oxides and ozone, powerful greenhouse gases. A major natural hazard, lightning contributes to approximately 24,000 deaths and 240,000 injuries worldwide every year. Price's findings point to the need for real action by the international community to reverse climate change.

Prof. Price chairs the Department of Geophysical, Atmospheric and Planetary Sciences, Raymond and Beverly Sackler Faculty of Exact Sciences.



Some like it hot

Israel's bright sun is not hot enough for Profs. Avi Kribus and Yossi Rosenwaks. They are developing an innovative solar energy process that simultaneously concentrates both the light and the heat of the sun. This light-heat combination meets head-on the greatest obstacle to solar energy's adoption as a global clean energy solution – conversion efficiency. Today, due to low conversion rates, huge amounts of solar energy generate only a small amount of electricity. By collecting heat energy along with light energy, the new TAU technology markedly raises the conversion rate of solar energy and transforms it into usable power for homes, schools and the workplace.

Prof. Kribus is a member of the School of Mechanical Engineering. Prof. Rosenwaks is a member of the School of Electrical Engineering and heads the Center for Renewable Energy.

Bringing natural history to life

TAU's Steinhardt National Collections of Natural History draw thousands of schoolchildren to the campus each year. Now, with the construction of a new, dedicated building, the general public from Israel and abroad will also have the chance to view some of the 5 million specimens.

A spacious wing will become the permanent home of "Nature Campus," TAU's science education and outreach program, while state-of-the-art laboratories will provide outstanding research conditions for the Collections' curators and scientists. When completed, the 8,000 square-meter building will become the centerpiece of the most comprehensive center in Israel for biodiversity research, conservation and education.

/ The Steinhardt National Collections of Natural History Building is being supported by Michael H. and Judy Steinhardt, additional private donors and foundations, and several Israeli government ministries.



LIFE /





Greener, better, smarter

Testifying to TAU's leading role in green research, the Israeli Ministry of Environmental Protection has approved a large-scale joint project with the Porter School of Environmental Studies to advance the field of green building in academia. The joint venture will include an appraisal of offerings in the field in Israeli higher education today; new courses in green building at the Porter School; green building workshops for professional audiences; and public conferences. In addition, the project will utilize the construction process of the School's own EcoBuilding (rendered below) as a tool for evaluating and reassessing Israeli green construction standards. It will showcase the EcoBuilding – the first building in Israel designed to win the coveted LEED Platinum certificate by the US Green Building Council – as a demonstration center for best practices in the field.



The Olympics of sustainable architecture



Twenty collegiate teams from around the world, including an Israeli one led by TAU's Porter School of Environmental Studies, will journey to Datong, China, this summer to compete in the 2013 Solar Decathlon. The challenge: To design, build and operate a solar-powered, zero net energy house that is both affordable and beautiful. Following the competition, the project will be displayed in Israel, serving as a model for sustainable living and green architecture.



The right to breathe clean air

Lawyers and law students at TAU's Environmental Justice Clinic are trailblazing the legal framework for defending poor and marginalized communities from environmental hazards. A major ongoing case is a class action suit being pursued by the Clinic on behalf of Haifa Bay residents suffering from air pollution caused by heavy industry in the area. The case is precedent-setting in Israel given that private law firms, not environmental organizations, usually take up such legal battles. In other important work, the Clinic successfully defended freedom of expression for activists who legitimately criticize the environmental practices of corporations.

/ The Environmental Justice Clinic is one of eight legal clinics in the Elga Cegla Clinical Legal Education Program, Buchmann Faculty of Law, which together serve thousands of Israeli citizens.

Reports



TEL AVIV UNIVERSITY
אוניברסיטת תל-אביב

2013

Annual Report

EARTH WATER AIR FIRE LIFE

TAU Officers

Lay Leaders



Prof. Jacob A. Frenkel

Chairman of the Board of Governors



Dr. Giora Yaron

Chairman of the Executive Council



Dr. h.c. Karl-Heinz Kipp

Deputy Chairman of the Board of Governors



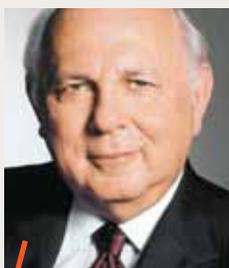
Mr. Marshall H. Polk

Deputy Chairman of the Board of Governors



Mr. Robert Goldberg

Honorary Chairmen of the Board of Governors



Mr. Harvey M. Krueger



Dr. Raymond R. Sackler



Mr. Michael H. Steinhardt

Dr. h.c. Josef Buchmann, Mr. Stewart M. Colton, Prof. François Heilbronn, Dr. h.c. Raya Jaglom, Mr. John Landerer, AM CBE, Mr. Adolfo Smolarz, Mr. Melvin S. Taub

Vice Chairpersons of the Board of Governors

Campus Leaders

Prof. Joseph Klafter
President

Prof. Aron Shai
Rector

Mordehai Kohn
Director-General

Prof. Yoav Henis
Vice President for Research and Development

Amos Elad
Vice President for Resource Development

Prof. Dina Prialnik
Vice Rector

Prof. Dany Leviatan
Pro-Rector

Prof. Asher Tishler
Dean of the Faculty of Management—Leon Recanati Graduate School of Business Administration

Prof. Eyal Zisser
Dean of the Lester and Sally Entin Faculty of Humanities

Prof. Ron Harris
Dean of the Buchmann Faculty of Law

Prof. Ehud Heyman
Dean of the Iby and Aladar Fleischman Faculty of Engineering

Prof. Moshe Mevarech
Dean of the George S. Wise Faculty of Life Sciences

Prof. Tammie Ronen
Dean of the Gershon H. Gordon Faculty of Social Sciences

Prof. Yoseph Mekori
Dean of the Sackler Faculty of Medicine

Prof. Hannah Naveh
Dean of the Yolanda and David Katz Faculty of the Arts

Prof. Yaron Oz
Dean of the Raymond and Beverly Sackler Faculty of Exact Sciences

Prof. Yoav Ariel
Dean of Students

New Projects

/ Academic Development

Support for Institute for National Security Studies – Robin Chemers-Neustein, USA

Coller Institute for Venture – UK

Renewed Support for Jaime and Joan Constantiner School of Education – Arturo and Caren Constantiner, USA

Jeremy and Judith Freedman Family Foundation Joint Teaching and Research Initiative between Queen's University Law and TAU's Buchmann Faculty of Law – Canada

TAU-UCSD Joint Cosmology Research Program – Joan and Irwin Jacobs, USA

Kahn Institute in the History of the Mediterranean Basin – USA

Support for Institute for National Security Studies – Klarman Family Foundation, USA

British Trust 2012 Living Legacy Fund – UK

Renewed Support for the Ofakim Program – Posen Foundation, UK

TAU Training Fellowships Abroad in the Medical and Life Sciences – Naomi Praver Kadar Foundation, USA

Lorry I. Lokey Graduate Center at TAU – USA

Support for Institute for National Security Studies – Joseph and Jeanette Lerman Neubauer, USA

Raphael Rothstein General Support Fund – USA

Support for the Edmond J. Safra Center for Bioinformatics – Edmond J. Safra Foundation, Liechtenstein

Support for Israel Studies Program – Ruth Shamir-Popkin, USA

/ Research

Pola and Yeshiaahu Avrech Fund for Hebrew Literature Research – Israel

Support for Multiple System Atrophy (MSA) Research – Martin Davis, UK

Dr. Albert and Doris Fields Center for Cardiovascular Research in the Sackler School of Medicine's Dept. of Physiology and Pharmacology – USA

Isaac Gilinski Chair of Entrepreneurship, Technology, Innovation and Management – Latin America

Leona M. and Harry B. Helmsley Nanotechnology Research Fund – USA

Psychology Research Fund for Prof. Yair Bar Chaim – IDF Friends, USA

Support for Alzheimer's and Parkinson's Research – Rosetrees Trust, UK

Brain Neuroplasticity Research Fund for Prof. Hilik Levkovitz – Walter and Lucille Rubin Foundation, USA

Joseph Klafter Chair in Biophysics – Raymond R. Sackler, USA

Medical Research and Scholarship Fund – Sheinman Estate, Canada

Multiscale BioCybernetics Research Fund – Laszlo N. Tauber Family Foundation, Israel

/ Campus Development

Irwin G. Beutel Entrance Hall, Sackler Faculty of Medicine – Canada

Classroom in Memory of Leopold Brenes at the Stanley Steyer School for Health Professions – Regina Brenes, France

Support for the Rothstein-Williamowsky Post Graduate Dental Clinics – Julius and Ray Charlestein Foundation, USA

TAU International Student Terrace – Jewish Federation of Greater Clifton-Passaic, USA

Support for the Rothstein-Williamowsky Post Graduate Dental Clinics – Barry S. Friedberg, USA

Goldreich Family Quad at Student City – Jona and Doretta Goldrich, USA

Renovations at the Bob Shapell School of Social Work – Shapell-Guerin Family Foundation, USA

Joseph and Raya Jaglom Auditorium – Switzerland

Support for the Steinhart National Collections of Natural History Building – JNF Canada

Human MRI Scanner at the Alfredo Federico Strauss Center for Computational and Neuro-Imaging – Karelsie Foundation, Switzerland

Laura Schwarz-Kipp Building at Student City – Dr. h.c. Karl-Heinz Kipp, Germany

Julia Menashe Medicinal Herb Garden – Israel

Pouran and Parviz Izak Nazarian Building – Union Communications Company LP, USA

Barbara Seal, CM, and Donald W. Seal, QC, Research Floor at the Buchmann Faculty of Law – Canada

Albert Dov Sigal Gallery – Rose Sigal Ibsen and Daniel M. Sigal, USA

Multiphoton Confocal Microscope for the Yechiel Elkabetz Laboratory – Debra and Richard Sincere, USA

Steinhardt National Collections of Natural History Building – Michael H. Steinhardt, USA

Public Shelter at Student City – Velusia and Flagler Counties Jewish Federation, Florida, USA

Equipment for Alternative Fuels Research – Wolfson Family Charitable Trust, UK

Equipment for Energy Research – Wolfson Family Charitable Trust, UK

Equipment for Psychology Research – Wolfson Family Charitable Trust, UK

Equipment for Quantum Information Science Research – Wolfson Family Charitable Trust, UK

Equipment for Turbulent Flow Research – Wolfson Family Charitable Trust, UK

/ **Student Aid and Fellowships**

Scholarships for Students of the Sofaer International MBA Program – Harry Bloomfield, Canada

Scholarships for Students at the Sackler Faculty of Medicine – Harry Bloomfield, Canada

Leopold Brenes Scholarship Fund for Ethiopian Students and Students from the Periphery – Regina Brenes, France

Cern Doctoral Fellowship Fund – International

Crown Family Foundation Graduate Fellowship Program in the Sciences – USA

Drora and Avraham Epel Scholarship Fund – Israel

Frost Scholarship Fund – Israel

Ida and Adam Frydman-AFTAU Vic. (Inc.) Scholarship Endowment Fund for New Immigrant IDF Reservists – Australia

Israeli Friends of Tel Aviv University Scholarship Fund for Students in Need – Israel

Scholarship Fund for Students in Need – Kaleb Estate, Israel

Krueger Family Humanities Scholarship Fund – USA

Max and Yuta Levkovitz Scholarship Fund for Outstanding Students in Music – Israel

Max and Yuta Levkovitz Graduate Fellowship Fund in the History of Medicine – Israel

Rabbi Dr. Ignac Pap Doctoral Fellowship Fund – Liechtenstein

Schulich Leader Scholarships – Canada

/ **Community**

Renewed Funding for "A Different Economy": Financial Education Program for Underprivileged Communities – Citibank Israel

Listed: Projects of \$100,000 and above, by alphabetical order within categories.

Top National Prizes



Israel Prize in
Performing Arts
**Prof. Nola
Chalton, Arts**

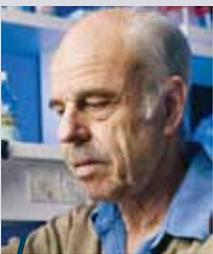
A professor emerita of the Department of Theater Arts, Chalton was cited for the indelible mark she has made on Israeli society as a leading theater director, teacher and mentor. She is credited with establishing documentary style theater in Israel that addresses the country's complex social and political reality.

A professor emeritus at the School of Mechanical Engineering, Dagan was recognized for his pivotal research in groundwater hydrology. He has published over 170 articles and is the winner of the Horton Medal of the American Geophysical Union (AGU), the Rothschild Prize and the Stockholm Water Prize, among other prestigious honors. Prof. Dagan also held the Raquel and Manuel Klachky Chair in Subsurface Hydrology at TAU.



Israel Prize
in Earth and
Atmospheric
Science
**Prof. Gedeon
Dagan,
Engineering**

A 2012 Israel Prize laureate, Prof. Nelson of the Department of Biochemistry and Molecular Biology has gained an international reputation for basic research into cell membrane molecular proteins and complexes, and particularly for his work on photosynthesis. Prof. Nelson has published more than 250 articles and his work has been cited over 15,000 times by researchers worldwide. Among his many distinctions, Prof. Nelson is a Member of EMBO – the European Organization for Excellence in Life Sciences.



Israel Prize in
Life Sciences
**Prof. Nathan
Nelson, Life
Sciences**

An internationally renowned linguistics scholar, Professor Emerita Berman (née Aronson) was instrumental in establishing the Linguistics Department at TAU in the late 1960s. She advanced English language studies on the basis of modern linguistic theory, conducted extensive research on the structure of Modern Hebrew, and pioneered the study of the acquisition and development of Hebrew as a first language. Among other honors, she is a recipient of the Humboldt Research Award, is an Honorary Life Member of the Linguistic Society of America, and is to be awarded an honorary doctorate of the University of Haifa in June, 2013.



EMET Prize in
Humanities
**Prof. Ruth
Berman,
Humanities**



EMET Prize in
Exact Sciences
**Prof. Abraham
Nitzan, Exact
Sciences**

A professor emeritus at the Raymond and Beverly Sackler School of Chemistry, Nitzan was recognized for his groundbreaking studies in chemical dynamics and for advancing the field of molecular electronics. Prof. Nitzan is incumbent of TAU's Riwka (nee Schechter) and Iser Kodesz Chair of Chemical Dynamics and Director of the Mortimer and Raymond Sackler Institute of Advanced Studies. A member of leading scientific academies and the recipient of numerous awards, Prof. Nitzan has published more than 300 articles.

Distinctions

Prof. Pinhas Alpert, Exact Sciences, Certificate of Championship of the Lower Jordan River

Prof. Amnon Aharony, Exact Sciences, Member of the Israel Academy of Sciences and Humanities

Prof. Ruth Amosy, Humanities, 2012 Landau Prize for Science and Research

Prof. Eran Bacharach, Life Sciences, 2012 Sarov Prize from the Israeli Society for Microbiology

Prof. Hava Bat-Zeev Shyldkrot, Humanities, Chevalier of the Order of Academic Palms, France

Prof. Eshel Ben-Jacob, Exact Sciences, 2013 Weizmann Prize in Exact Sciences

Prof. David Bergman, Exact Sciences, 2012 Rolf Landauer Medal of the International ETOPIA Association

Prof. Joseph Bernstein, Exact Sciences, Fellow of American Mathematical Society

Prof. Yael Binyamini, Social Sciences, Fellow of the European Health Psychology Society

Prof. Daniel Cohen-Or, Exact Sciences, People's Republic of China Friendship Prize

Prof. Dan Dayan, Medicine, Honorary Life Membership of the International Association of Oral Pathologists

Prof. Guy Deutscher, Exact Sciences, 2012 Israel Vacuum Society Research Prize

Prof. Shmuel Einav, Engineering, 2012 Landau Prize for Science and Research

Dr. Neta Erez, Medicine, TAU 2012 Award for Commitment to Advancement of Women in Academia

Prof. Israel Finkelstein, Humanities, Member of the Selection Committee of Shanghai Archaeology Forum

Prof. Talia Fisher, Law, Cheshin Award for Young Legal Scholar; Member of the Israel Young Academy of Science; Member of the Global Young Academy

Dr. Tamar Geiger, Medicine, Marguerite Stolz Research Fellowship for Junior Faculty in Medicine and Health Professions

Prof. Moti Gitik, Exact Sciences, Fellow of the American Mathematical Society

Prof. Illana Gozes, Medicine, Meitner Humboldt Research Award

Prof. Yael Hanein, Engineering, Member of the Israel Young Academy of Science

Dr. Tali Hatuka, Humanities, Yacov and Zeev Rechter Prize for Architecture

Prof. Abraham Hefetz, Life Sciences, Chevalier of the Order of Academic Palms, France

Dr. Tamar Herzig, Humanities, Member of the Israel Young Academy of Science

Dr. Oded Hod, Exact Sciences, Member of the Israel Young Academy of Science

Prof. Avner Holtzman, Humanities, Academy of Hebrew Language Prize

Prof. David Katz, Appointment to the Governing Council of the Israel State Archives

Prof. Abraham Katzir, Exact Sciences, International Biophotonics Lifetime Achievement Award

Prof. Alla Kushnir-Stein, Humanities, Israel Museum's Ya'akov Meshorer Numismatic Prize

Prof. Yossi Leshem, Life Sciences, 2012 Bruno H. Schubert Prize

Prof. Vitali Milman, Exact Sciences, Fellow of the American Mathematical Society

Prof. Touvia Miloh, Exact Sciences, Fellow of the Association for Computing Machinery (ACM)

Dr. Ariel Munitz, Medicine, Marguerite Stolz Research Fellowship Fund for Junior Faculty in Medicine and Health Professions

Prof. Nadav Naaman, Humanities, Member of the Israel Academy of Sciences and Humanities

Prof. Ehud Nakar, Exact Sciences, Member of the Israel Young Academy of Science

Prof. Alexander M. Olevskii, Exact Sciences, Fellow of the American Mathematical Society

Prof. Victor P. Palamodov, Exact Sciences, Fellow of the American Mathematical Society

Prof. Dina Porat, Humanities, International Raoul Wallenberg Medal

Prof. Tal Pupko, Life Sciences, 2012 Hestrin Prize from the Israel Society for Biochemistry and Molecular Biology

Prof. Navah Ratzon, Medicine, 2012 Israeli Society of Occupational Therapy Excellence Award

Prof. Yishai Rosen-Zvi, Humanities, Member of the Israel Young Academy of Science

Prof. Zeev Rudnick, Exact Sciences, Fellow of the American Mathematical Society

Prof. Naama Sabar Ben Yehoshua, Humanities, 2012 Liebhaber Award for Jewish Tolerance

Prof. Ron Shamir, Exact Sciences, Fellow of the Association for Computing Machinery (ACM); Fellow of the International Society for Computational Biology

Prof. Roded Sharan, Exact Sciences, Member of the Israel Young Academy of Science

Prof. Nir Shavit, Exact Sciences, 2012 Edsger W. Dijkstra Prize in Distributed Computing

Prof. Mikhail Sodin, Exact Sciences, Foreign Member of the Royal Norwegian Society of Sciences and Letters

Prof. Shimon Yankielowicz, Exact Sciences, 2013 Weizmann Prize in Exact Sciences

Interdisciplinary Research

Human Psyche Meets Technology

- **What impression do ads leave on your brain?**

Pioneering the fields of neuroeconomics and neuromarketing in Israel, new recruit **Dr. Dino Levy** (Management) is applying his interdisciplinary background in economics, psychology and neurobiology toward understanding how consumer choices are influenced by marketing campaigns. In his new neuromarketing research lab, Levy will integrate neurophysiological and neuroimaging techniques to actually see and measure the effects of advertising on the brain and on consumer behavior.

- **Information flow and human herds**

Researching the process by which information spreads in our modern connected world, PhD student **Alon Sela**, supervised by **Prof. Irad Ben-Gal** (Engineering), is furthering Network Science – the interdisciplinary study of large systems built from numerous interconnected components. Sela was inspired by biological herding dynamics in his examination of how social compatibility influences the spread of beliefs in human networks. His work offers new insights into events such as the "Arab Spring," regime changes or financial crises.

- **First we invented language, then it changed us**

Combining communications and evolutionary biology, **Dr. Daniel Dor** (Social Sciences) is working with **Prof. Eva Jablonka** (Humanities) on an alternative concept of the origin and evolution of language. Rather than seeing it as an inborn capability, which is the prevailing view, they propose that language was invented by humans as a tool for communication. This tool then had an active influence on subsequent human development, cognition and emotion. The researchers further suggest that while language was developed before humans acquired the cognitive make-up to be proficient in its use, it gradually changed society, which began to favor individuals with stronger linguistic abilities.

Health and Welfare

- **New discoveries about yeast**

Yeast expert **Prof. Judith Berman** (Life Sciences) joined TAU this past year from the University of Minnesota, where she is Distinguished McKnight University Professor. She combines genetics, computational analysis and nanotechnology together with chemical and biophysical-based approaches to study how harmful yeasts survive antifungal drugs. Her team recently discovered that the potentially dangerous yeast *Candida albicans*, which resides in the human gut, can undergo an unconventional process of chromosome loss. Published in *Nature*, this discovery has important implications for future work with this organism that can become a serious pathogen – and even a killer – in patients with weakened immunity.

How does social compatibility influence the spread of beliefs?

Why do viruses combine and exchange genes?

- **Protecting the power of our drugs**

Dr. Oren Kobilier (Medicine), former post-doctoral fellow at Princeton, has been collaborating with mathematicians and physicists in his study of viruses. To understand genetic diversity in the viral population, his team has been investigating the mechanisms that allow viruses to combine and exchange genes, thereby generating new viral strains with mutations that make them resistant to anti-viral drugs. By identifying these mechanisms, the researchers could develop substances to block them and reduce the likelihood of the emergence of drug-resistant viruses.

- **A unique approach to the study of diabetes**

Drawing on her strong background in developmental and cell biology, **Dr. Limor Landsman** (Medicine), newly recruited from UC San Francisco, is studying insulin-producing cells in the pancreas and the process by which healthy functioning goes awry. She and her research group are focusing on how these cells communicate with their environment and how this communication is impaired by diabetes. Going back to the way these important cells first appear in the embryo, the researchers are further investigating how the microenvironment of the pancreas influences the cells' development. With this newly gained knowledge, they hope to facilitate a cell replacement therapy for the treatment of diabetes.

- **From engineering to rehabilitation**

Young faculty member **Dr. Sigal Portnoy** (Health Professions) applies the electronics and biomedical engineering degrees she earned at TAU toward improving rehabilitative equipment for motor-impaired individuals. At her new laboratory in the Department of Occupational Therapy, Portnoy analyzes effects of prostheses, electronic braces and other treatment procedures using

advanced technologies for motion capture and for recording the electrical activity of muscles. New technologies that she is designing and testing will benefit amputees, stroke survivors, autistic children, adults with ADHD and many others.

From Nano to Networks

- **Next generation electronics**

Attempts to replace current state-of-the-art electronics with faster, smaller and more energy-efficient alternatives involve the use of nano-sized elements controlled by lasers rather than by electric current, but such nanolaser systems have so far proved unstable and non-viable. **Dr. Tal Ellenbogen** (Engineering) and his group, working in the new Laboratory for Nanoscale Electro-optics, are optimizing nanolasers using semiconducting nanowires in what they hope to be a significant step toward creating first-generation nanolaser-powered circuitry. This promises to lead to exciting technological, medical and biological applications.

- **Combining pure mathematics and physics**

With a five-year European Research Council Advanced Grant, **Prof. Zeev Rudnick** (Exact Sciences), incumbent of the Cissy and Aaron Beare Chair of Number Theory, will be exploring the connections between Number Theory and Quantum Chaos. Number Theory, although one of the oldest disciplines in pure mathematics going back thousands of years, has recently seen surprising applications in cryptography and Internet commerce. Quantum Chaos is an emerging discipline at the interface between pure mathematics and physics that explores the effects of extreme instability on quantum mechanics. Rudnick's research focuses on unexpected connections between the two disciplines, and on the structure of prime numbers – the building blocks of arithmetic.

What is
"Quantum
Chaos"?

- **Looking at cyber-security from every angle**

Applying an interdisciplinary approach to the vital issue of cyber-security, four researchers are contributing their expertise to a project funded by the Israel Ministry of Science and Technology. **Prof. Irad Ben-Gal** is teaming up with **Prof. Joachim Meyer**, **Dr. Tal Raviv** and **Dr. Eran Toch** (all of Engineering) to look at various aspects of cyber-security, from data abnormalities and models of optimization, to user behaviors and computer-user interaction. This combined approach is expected to lead to more comprehensive and reliable solutions to a serious worldwide problem.

- **Engineering a bridge to industry**

IAP, the Industrial Affiliates Program, was established this year as a bridge between the Iby and Aladar Fleischman Faculty of Engineering and Israel's technological industry. Inherently interdisciplinary, the Faculty can contribute to companies involved in electronics, mechanics, computer science, bioengineering, materials, information engineering, and more. Industry leaders such as Intel see their membership in IAP as a strategic investment, while smaller companies see it as a way to access TAU's state-of-the-art research and teaching activities. Currently headed by **Prof. David Mendlovic** (Engineering), IAP gives students a stepping stone into industry and provides companies with a competitive edge.

Promoting Israeli Scientific Excellence

- **Spearheading computational science research**

Prof. Oded Hod (Exact Sciences) has been selected as the Israel Node Director of CECAM, Centre Européen de Calcul Atomique et Moléculaire, which is devoted to the promotion of basic research into advanced computational methods, and to the application of these methods in frontier areas of science and technology. Although not directly involved in research itself, the organization promotes computational science through the dissemination of research findings via workshops, tutorials and exchange programs. CECAM's main fields of interest include computational chemistry, materials sciences, physics and biology.

- **Seven new national centers**

Tel Aviv University has won partnerships in 7 out of 11 new Israeli Centers of Research Excellence (I-COREs) set up by the government this year. The I-CORE program aims to fundamentally strengthen the long-term positioning of Israel's academic research and to provide a funding framework for wooing outstanding young Israeli researchers back from overseas.

TAU leaders of I-COREs:

Prof. Zahava Solomon (Social Work) leads a new center for Mass Trauma Research covering all aspects of the field from basic research to prevention and treatment. **Prof. Isaac Ben-Israel** (Social Sciences) is a member of the center's scientific management.

Prof. Hillel Fromm (Life Sciences) leads the center on Plant Adaptation to the Changing Environment, which will engage in comprehensive investigation of plants at the genetic level through whole plant behavior to wider ecological systems.

Prof. Yaron Oz (Exact Sciences) is co-scientific manager of the center on The Quantum Universe, which will attempt to answer "What is dark matter made of?" and other fundamental questions about the structure of the universe.

TAU I-CORE partnerships:

Participating in four other new I-COREs as research partners are **Prof. Elhanan Reiner** (Humanities) in The Study of Modern Jewish Culture; **Prof. Dan Maoz** (Exact Sciences) in Astrophysics – From the Big Bang to the Stars; **Prof. Haim Wolfson** (Exact Sciences) in Structural Biology of the Cell – Biophysics and Medical Technology; and finally, recruited last year from UCLA, **Dr. Yuval Ebenstein** (Exact Sciences) in the center for Physical Approaches to Dynamic Processes in Living Systems.

International Initiatives

Touching Our Senses

- **From ashes to art**

During one of the darkest periods in Jewish, and indeed human history, art survived as an expressive outlet. **Prof. Gad Kaynar** (Arts) is chairman of the 24-member international editorial board of the Holocaust Theater Online Collection (HTC), a project under the auspices of UNESCO and the International Theater Institute. Created as a digital tool for collecting and studying all forms of art created during, or relating to, the Holocaust, the HTC's first research project will focus on Jewish performance activity in occupied Holland.

- **The color of music**

Musicologist **Prof. Zohar Eitan** (Arts), together with researchers from the University of Sheffield, UK, and from the Hebrew University of Jerusalem, initiated an International Research Network to systematically investigate how listeners associate musical features, such as pitch or volume, with visual features, such as brightness, size or motion direction. The aim is to elucidate the psychological mechanisms underlying music's connection to non-auditory domains, and to enhance understanding of the role of music in multimedia art and entertainment today. The research is supported by a British Academy grant for international cooperation.

What forms did art take during the Holocaust?

Discoveries, from Cellular to Cosmic

- **How ear cells help us hear**

Dr. David Sprinzak (Life Sciences) and **Prof. Karen Avraham** (Medicine) are recipients of a Human Frontier Science Program grant together with colleagues in the US and Japan. The team will study the process by which cells in the ear that are critical for hearing acquire a particular orientation during embryonic development. Called planar cell polarity, this process is responsible for the precise tilt of hair cells in the inner ear that enables them to act as accurate sound sensors. The genes and proteins responsible for planar cell polarity also play a role in the proper arrangement of neurons in the brain. Understanding these developmental processes may shed light on how to treat genetic disorders associated with deafness as well as with brain disorders.

- **From primordial beginnings to the distant future**

Prof. Yoel Rephaeli (Exact Sciences) initiated a joint Cosmology Research Program between Tel Aviv University and UC San Diego, with funding by philanthropists Joan and Irwin Jacobs. The aim of the program is to determine the basic properties of the universe and the evolution of its large-scale structure. Research will focus on detailed measurements and analysis of the cosmic microwave background radiation that was produced in the primordial hot and dense universe, when matter and radiation were in a state of equilibrium. Improved knowledge of the past and present properties of the universe is essential for our ability to predict its future evolution.

People Interacting

- **Venturing into the academic-business crossroads**

The newly established Collier Institute of Venture, headed by **Prof. Moshe Zviran** (Management), incumbent of the new Isaac Gilinski Chair of Entrepreneurship, Technology, Innovation and Management, will seek to develop insights on global venture capital, entrepreneurship and innovation by forging stronger ties between the academic and business communities and by conducting research and teaching in the field. Set up as a sister center to the Collier Institute of Private Equity at the London Business School (LBS), the new TAU Institute will disseminate its findings in English among the industrial, academic, policymaking and investor communities in Israel and worldwide.

- **Found in translation: The Bible in Arabic**

A major grant has been awarded by the German Research Foundation (DFG) to **Profs. Camilla Adang** and **Meira Polliack** (Humanities) and Prof. Sabine Schmidtke of Freie Universität Berlin. They will be working with teams of PhD students and post-doctoral researchers in Israel and Germany to analyze Arabic translations of the Bible produced during the Middle Ages when many Jews, Christians and Samaritans were living under Muslim rule. The researchers will examine how these translations were influenced by the Qur'an and related to by Muslims in their discussions with members of other Abrahamic religions.

- **The China connection**

With the signing of an agreement between TAU and Tsinghua University in Beijing this year, TAU has ramped up its efforts to expand links with China. A large delegation from Tsinghua and Nanchang Universities spent two weeks on the TAU campus exploring options for joint research and student exchange with the Center for Nanoscience and Nanotechnology. Another Tsinghua group of 45 management professors and Executive MBA students attended an immersive, 6-day seminar on innovation and entrepreneurship at TAU's Faculty of Management—Leon Recanati Graduate School of Business Administration. In addition, TAU is actively recruiting Chinese students from 10 universities and 4 elite high schools for a variety of degree and summer programs at the TAU International School.

From Thoughts to Things

- **Where quantum and classical physics meet**

The world of quantum physics is full of surprises and non-intuitive results, such as particles unexpectedly behaving like waves. **Prof. Ori Cheshnovsky**, incumbent of the Raymond and Beverly Sackler Chair in Clusters and Nanoparticles, and **Prof. Uzi Even** (both in Exact Sciences) are exploring the unknown region where quantum and classical physics blend together. Their research is part of the European NANOQUESTFIT consortium, which includes an international team of experts in quantum optics, nanotechnology, chemistry and cluster physics. The implications of this research can range from describing the limits of quantum computers to developing extremely sensitive gravity detectors.

- **Pure mathematics and your gadgets**

Pure mathematics can take decades to filter down into practical applications. When it does, the results are game-changing. Coordinated by **Prof. Leonid Polterovich** (Exact Sciences), TAU researchers together with leading scientists worldwide are embarking on a joint research program: Topology in Dynamics and Physics. Topology, the mathematical study of shapes as they stretch, bend and twist, provides theoretical tools for the modeling of processes such as orbital motion, propagation of light in optical fibers, and the motion of charged particles through accelerators. These all find applications in telecommunications and navigation systems, medical equipment and even cancer therapies.

What can academia offer to global venture capital?

Alumni: Movers and Changers



Boaz Toporovsky

New Member of Knesset for Yair Lapid's "Future Party"

- BA in Economics, LLB and LLM, TAU Former Chairman of the National Students Union
- Former Chief Advisor to the Minister of Welfare and Social Services

One of Israel's youngest parliamentarians, 32 year-old Boaz Toporovsky is in his element. During his first months as a Member of Knesset he has already tabled two bills, including a call for the establishment of a Next Generation Commissioner to analyze and report on the impact of any new legislation on future generations.

"As long as I can remember, it's been my dream to change things for the better," Boaz says. He volunteered to work in the Students Union on his first day of undergraduate studies at Tel Aviv University, and while still a graduate student, he established his own political party and won three seats on the Tel Aviv-Yafo City Council. One of many achievements as a young leader include rallying the nation's students behind him to win greater Israeli government investment in higher education. Where does Boaz see himself in ten years' time? "Wherever I can change the world."



Amir Sabhat

Advocate for the Ethiopian-Israeli community

- MBA in Financial Management, TAU
- Graduate of Or Ezion military academy

"There should be less emphasis on individual benefit and more on working for society," Amir says, and he practices what he believes. Working with several non-profit organizations, he has organized a mentoring program for Ethiopian youth to help them integrate socially and prepare for the army. Amir was an officer in the IDF and member of a select paratrooper unit. He says of his army experience, "those were six very interesting, satisfying years. Only in hindsight do you understand the very important contribution you've made. I wanted others to benefit from a similar experience."

Born in Ethiopia, Amir's journey to Israel began at age five with a two-month walk to Sudan. Having accomplished that, life continued as a search for challenges. "The status of the Ethiopian-Israeli community must be improved so that everyone can live a good life in a healthy society," he says. Ten years from today, Amir intends to be CEO of a major firm, and hopes to one day look back and say, "Oopa! Israeli society has changed for the better."

Campus-Wide R&D

Game Changers

- **Powering up brain cells**

Of all the cells in the body, brain cells are among the biggest energy consumers, needing a constant supply of fuel delivered by the blood through the vascular system. New faculty recruit **Dr. Pablo Blinder** (Life Sciences) has set up a lab using one of the world's most advanced microscopy technologies, the multi-photon laser scanning microscope, to study the interaction between brain cells (neurons and glia) and the vascular system that regulates the brain's energy and oxygen supply. His research is expected to shed light on brain dysfunction, dementia and neurodegenerative diseases.

- **So learned behaviors ARE inherited?**

Early in the 20th century, when the scientific world embraced Mendelian genetics and Darwin's concept of Natural Selection, the theory of inheritance of acquired traits was abandoned. Now, however, new faculty recruit **Dr. Oded Rechavi** (Life Sciences) is discovering the biological principles and underlying mechanisms that unequivocally support a heretical, non-Mendelian model of inheritance. He is demonstrating how acquired characteristics can, in fact, be inherited. The key player in this new type of genetics is RNA, a molecule in the genome that is similar to DNA but has different functions. Recently published in *Cell*, Rechavi's model of inheritance turns the field on its head and opens new avenues of research.

- **When light and molecules meet**

Light can be absorbed by molecules, and the physical rules describing when such absorption can occur are based on the fact that molecules are relatively small compared to the wavelengths of light. Now, however, **Prof. Eran Rabani** (Exact Sciences), together with scientists at UC Berkeley and the Hebrew University of Jerusalem, has shown that the rules of absorption need to be revised. Utilizing techniques to "shape" light at the nanoscale, and based on a combination of theory and computer simulations, the researchers have predicted new rules by which absorption previously thought impossible becomes possible, with future implications for light harvesting devices such as solar cells, as well as for optical imaging devices.

- **Particles travel in straight lines...or do they?**

According to Newton's time-honored laws, a particle on which no force is exerted will travel in a straight line. However, a research team led by **Prof. Ady Arie** (Engineering) that includes PhD student **Noa Voloch-Bloch**, **Dr. Yossi Lereah**, **Dr. Yigal Lilach** and **Prof. Avi Gover** has just generated a type of electron that is not found in nature and does not appear to move through space in a straight line. Recently published in *Nature*, their work will enable the discovery of fundamentally new physical effects and has possible applications in the field of electron microscopy.

Reappraising Today's World

- **The hidden influences on government**

Dr. Yael Shomer (Social Sciences) is one of eight researchers taking part in a project sponsored by the Norwegian Research Council and involving scientists from England, Ireland, Israel, Norway, Spain and the US. They will examine the basic institutions of parliaments around the world, tracing their origins and studying their impact on parliamentary governments' gain or loss of power. The research is expected to shed light on the effect of these institutions on the type and duration of governments, their legislative capacity, and their ability to manage their coalition and deal with deep economic crises.

- **The meaning of independence**

The prestigious European Research Council Advanced Grant has been awarded to **Prof. Eyal Benvenisti** (Law) for his research on the concept of sovereignty in a globalized world. When borders become blurred and both communities and countries become increasingly interdependent, what are their responsibilities and duties toward each other? Do states, when exercising their domestic regulatory functions, have an obligation to consider the interests of foreign individuals and communities that may be adversely affected? Seeking to form an alternative and updated concept of sovereignty, Benvenisti will examine these questions from a range of legal aspects in collaboration with an international team.

- **Bubbles with a lasting effect**

Market bubbles destabilize the economy, but some may also contribute to long-term economic growth, suggests **Dr. David Zvilichovsky** (Management). In a recent study, he shows how bubbles that accompany technological revolutions may facilitate widespread adoption of new technologies and promote innovation. Zvilichovsky's new model also provides a possible explanation for the increase in productivity that followed well-known market bubbles such as the dot-com bubble and the 19th century UK railway bubble.

Are acquired traits heritable through the genome?

What is "sovereignty" in a globalized world?

- **Closing the gap in work conditions**

In a comparative study of job inequality based on skill level, **Prof. Haya Stier** (Social Sciences) has examined the labor market in 27 countries at varying stages of development and industrialization. Her study focuses on the expanding divide between unskilled labor at one end, suffering increasingly poor work conditions, and highly skilled labor at the other end, enjoying increasingly advantageous work conditions. She cites the introduction of knowledge-based technologies, downsizing of production sectors and expansion of service sectors, as well as intense competition from a migrant work force, as major causes for the growing gap in work conditions. Her project aims to identify institutions at the national level that can help reduce disparity in the quality of work conditions.

- **Choosing a mate high-tech style**

Cultural sociologist **Dr. Ori Schwarz** (Social Sciences), who joined TAU after completing research as a Fulbright Fellow at Harvard, explores how online dating sites, and the people who use them, make their choices. By examining the software architecture and evaluation techniques of online dating sites, as well as interviewing their users, he seeks to shed light on how individuals appraise potential partners, what criteria they use, how they interpret information presented, and how they cooperate with, or resist, the suggestions of the online site.

When were the first stars born?

- **A universe in its infancy**

Prof. Rennan Barkana (Exact Sciences), in collaboration with colleagues at the California Institute of Technology and Harvard University, has discovered a new way to detect the very first stars when the universe was at a mere 1 percent of its present age. Using powerful computer models, the team showed that the difference in the speeds of movement of gas and dark matter caused the first stars to clump together into clearly visible, large-scale cosmic webs. The discovery of these web-like structures, published in *Nature*, makes it feasible for radio astronomers to detect light from hydrogen that was heated by the first stars when the universe was only 200 million years old.

- **Fruits of an ancient garden**

Just outside Jerusalem, in what is today the archeological site of Ramat Rachel, a splendid royal Persian garden adorned the hilltop some 2,500 years ago. Palynologist **Dr. Dafna Langgut**, under the direction of archeologists **Prof. Oded Lipschits** and **Dr. Yuval Gadot** (Humanities), managed to reconstruct the exact botanical components of this ancient garden based on her study of fossil pollen grains. Findings indicate that in addition to local fruit trees and ornamental plants, the garden contained trees imported from distant lands, probably within the Persian Empire. The most surprising find was the citron (*Citrus medica*), marking the first evidence of citron cultivation in the Mediterranean basin.

- **Tailored treatment for attention problems**

TAU's Attention Lab, directed by **Prof. Lilach Shalev-Mevorach** (Education), is running a pilot project in collaboration with the Psychological-Educational Services in Holon. MA students from the Attention Lab have assessed Holon schoolchildren with ADHD and, based on their resulting attention profile, referred the children to Holon educational psychologists who attended a TAU-run workshop in attention training. In a parallel pilot field study that is the first of its kind in the world, all first-grade children in a Holon school will undergo screening for attention functioning. Unique tailor-made recommendations will be given to teachers based on neuropsychological tools developed in the Attention Lab.

How can we improve attention skills of school-age children?

Community

Focus on Health

- **Protecting our soldiers . . . teeth!**

During Health Awareness Month in the Israel Defense Forces, a unique oral health event was held at an IDF Air Force base. Initiated by TAU graduate Dr. Tom Brandstaetter, it was enthusiastically backed by **Prof. Ilana Eli**, head of the Maurice and Gabriela Goldschleger School of Dental Medicine; her colleague **Prof. Raphael Pilo**, Chairman of the Curriculum Committee; and 40 volunteer dental students. During the event, 600 base personnel, regardless of rank, reported for oral hygiene instruction per a timetable planned with military precision. Participants praised the efficacy of the personal encounter, while students learned about the oral needs of the community.

- **Internet health advice – No language skills required**

The Internet is a good source of information and guidance for healthcare issues that some find too sensitive to discuss. However, people with low literacy in Hebrew cannot avail themselves of this resource. To overcome this problem, **Prof. Nurit Guttman** and **Dr. Elad Segev** (Social Sciences) are overseeing a project aimed at developing an Internet application, including search engine and content, that speaks to the user in words and pictures. This audio-visual platform, funded by a grant from the Israel Institute for Health Policy, will be tested in Ethiopian-Israeli community centers throughout the country.

How can Israeli society help its foreign workers integrate better?

Educational Opportunities

- **A helping hand to foreign workers and refugees**

Bringing together Israeli and foreign volunteers with Mesila – the Tel Aviv-Yafo municipality center for assistance to foreign workers and asylum seekers, labor studies professor **Gideon Kunda** (Social Sciences) has established the Community Education Center (CEC). The goal of CEC is to assist members of the foreign communities in Tel Aviv in their struggle to survive, exercise their rights and attempt to integrate into the job market. To date, over 700 participants have attended classes in Hebrew, journalism, small business management, photography, psychology, computer technology and graphic design.

- **Education for a cohesive community**

Furthering its outreach policy, the Unit for Teacher Education under **Dr. Ofra Inbar** (Education) chose two schools with ethnically and academically diverse student bodies for practice teaching. TAU students had a challenging opportunity to develop teaching strategies that cater to schoolchildren's diverse needs, while the schoolchildren had a positive academic experience. Similarly, a unique elective course was established by lecturer **Idit Livneh** (Education), in collaboration with the Social Involvement Unit of the Ruth and Allen Ziegler Student Services Division, that combines academic studies with hands-on tutoring at schools with socially weak and special needs children. Entitled "Inequality, Otherness & Separation," the course aims to familiarize students with the reasons for the formation of social groups and hierarchies and to encourage ongoing community intervention activities through a feeling of personal commitment and an affinity toward the field of education.

Teaching

Expanding the Circle of Expertise

- **Advanced training for Palestinian physicians**

With seed funding from the Mauerberger Foundation, the Sackler School of Medicine is initiating a Training Program for Palestinian Physicians. The one-week intensive course will focus on women's health issues, family medicine and child care, among other topics. Participants will also conduct research on genetic, infectious and chronic diseases prevalent in the Palestinian population. The hope is that the state-of-the-art medical training will improve health conditions among Palestinians and facilitate dialogue and goodwill between the Israeli and Palestinian peoples.

- **Occupied with mental health**

Occupational therapists are well positioned to play a significant role in the emotional and social rehabilitation of their patients, but such a specialization has not been among their academic options – until now. A new Community Mental Health Rehabilitation Track in Occupational Therapy, funded by the Laszlo N. Tauber Family Foundation, is being offered by the Department of Occupational Therapy, Stanley Steyer School of Health Professions, under the direction of **Dr. Naomi Hadas Lidor** (Medicine). Students will gain expertise in mental health, develop the skills for academic research, and advance both knowledge and practice in this field.

- **New profession: Inclusion Coordinators**

Israel's Special Education Law stipulates that, wherever possible, special needs children should be included in mainstream education rather than isolated in special-ed classes. The law does not, however, stipulate or advise how this complex task is best accomplished. The Jaime and Joan Constantiner School of Education has created, as a first in Israel and perhaps in the world, a two-year post-graduate certificate program under the direction of **Prof. Esther Dromi** (Education), aimed at preparing specialists in the educational inclusion of children with ASD (autism spectrum

How can the mainstreaming of special needs children be improved?

disorders). Open to professionals experienced in work with autism and holding a BA or MA in education or in clinical rehabilitation professions, the new track will create a unique cadre of Inclusion Coordinators.

Arts Here and There

- **Understanding visual culture**

Photography studies are part of a new program headed by **Dr. Vered Maimon** (Arts) aimed at enriching the selection of courses and seminars offered in the arts. The program will offer a uniquely interdisciplinary approach to photography by examining it as an instrument of documentation and knowledge production, as well as an art form. Participants will study the subject from the perspectives of a range of disciplines – history, anthropology, gender studies, contemporary art and more. Students will emerge with a broad understanding of how photographs are produced, distributed and interpreted, both in historical and contemporary contexts.

- **Dramatic exchanges**

A faculty exchange program marks the first collaboration between TAU and the Austrian Mozarteum University in Salzburg. Theater expert **Prof. Gad Kaynar** and stage director **Ms. Dedi Baron** (Arts) will present a workshop in dramatic approaches at Mozarteum, while renowned German stage director Prof. Amélie Niermeier and her colleague Prof. Christoph Lepschy, both of Mozarteum, will present a workshop at TAU in post-dramatic directing and dramaturgy. Further faculty and student exchanges are planned between the universities.

In another international collaboration, **Prof. Freddie Rokem** (Arts) and students from the Practice as Research Program at TAU's Theater Arts Department are working with colleagues at the University of Chicago and Frankfurt University on a Bertolt Brecht project funded by the Rothschild Foundation. Participants in the project are exploring the theoretical background and performance dimensions of virtually unknown texts by the German playwright and director. The groups from the three universities will meet in the fall to exchange ideas and share practical results of the research.

TAU International – New Programs

- **Law for an international student body**

TAU's International LLM is a new, one-year master's program directed by **Prof. Eyal Benvenisti** (Law) for English-speaking students from around the globe. A wide selection of courses will be taught by internationally-renowned professors with innovative approaches to legal theory. Topics will range from contemporary legal challenges stemming from globalization, to Israeli legal and social systems, the complexities of the Middle East

region, and legal aspects of the “start-up nation.” Students will choose one of three specialization tracks: “Law, Global Governance and Human Rights”; “Law, State and Religion”; and “Law and Technology.” In addition, they will take part in courses and seminars open to Israeli law students, affording interaction that will enrich both groups. Upon completion of the program, graduates will be eligible to apply for PhD studies at the Buchmann Faculty of Law.

- **New international MA in Israel Studies**

The Jewish History Department is opening a new international MA program in Israel Studies under the direction of **Prof. Motti Golani** (Humanities). The one-year program will focus on Jewish and Zionist history, as well as on Israel's current political, economic and security challenges against the backdrop of complex geopolitical realities. The program will also include visits to relevant sites around the country, meetings with leading figures in Israeli society and intensive Hebrew language studies.

What could be more logical than pursuing Israel Studies in Israel?

TEL AVIV UNIVERSITY FRIENDS ASSOCIATIONS CONTACT DETAILS

ARGENTINA

Asociación de Amigos de la Universidad de Tel Aviv en Argentina (AUTA)

Paraguay 4010 1-A
1425 Buenos Aires
Tel. +54 11 4833 7090
auta@satlink.com
info@auta.org.ar
www.auta.org.ar

AUSTRALIA

Australian Friends of Tel Aviv University – Victoria

TOK Corporate Centre
Level 1, 459 Toorak Road
Toorak, Victoria 3142
Tel. +61 3 9296 2065
aftau.vic@gmail.com
www.aftau.asn.au

Friends of Tel Aviv University – New South Wales

P.O. Box 128
Double Bay, NSW 1360
Tel. +61 2 9363 0004
nsw@aftau.org.au

AUSTRIA

Gesellschaft der Freunde der Universität Tel Aviv in Österreich

c/o Christl Langstadlinger
University of Vienna, Faculty of Physics
Boltzmanngasse 5, 1090 Vienna
Tel. +43 1 4277 51108
christl.langstadlinger@univie.ac.at

BRAZIL

Sociedade Brasileira dos Amigos da Universidade de Tel Aviv

c/o Dr. Mario Arthur Adler
Rua Dr. Eduardo de Souza Aranha 99/92 9°
04543-120 São Paulo SP
Tel. +55 11 3849 3336
mario.adler2@gmail.com

c/o Dr. Esther Kuperman
Rua Das Laranjeiras 518/204
Rio de Janeiro – 22240006
Tel. +55 21 2567 5596
estherkuperman@gmail.com

c/o Dr. Mario Gurvitz Cardoni
Rua Dona Inocencia 266/201
Jardim Botânico – 90690-030
Porto Alegre – Rio Grande do Sul
Tel. +55 51 3391 4537
cardoni@terra.com.br

CANADA

Canadian Friends of Tel Aviv University – Montreal and Eastern Regional National Office

Decarie Square,
6900 Decarie Boulevard – Suite 3480
Montreal, Quebec H3X2TB
Tel. +1 514 344 3417
cftau@bellnet.ca

Canadian Friends of Tel Aviv University – Toronto and Western Region

3130 Bathurst Street – Suite 214
Toronto, Ontario M6A 2A1
Tel. +1 416 787 9930
stephen@cftau.ca
www.cftau.org

FRANCE

French Friends of Tel Aviv University

2 rue Alfred de Vigny
Paris 75008
Tel. +33 1 40 70 18 40
afauta@wanadoo.fr
www.ami-universite-telaviv.com

GERMANY

Freunde der Universität Tel Aviv e. V.

c/o E.-K. Prüfer / Dezernat V
Sandgasse 4
D 60311 Frankfurt am Main
Tel. +49 (0) 170 22 68 239
ekpruefer@telaviv-uni.de

INDIA

Indian Friends of Tel Aviv University

Solomon & Co.
Calcot, House, 3rd Floor
8/10 M.P. Shetty Marg, Fort, Mumbai – 400023
Tel. +91 22 6627 3900
aaron.solomon@slmnco.in

ISRAEL

Israeli Friends of Tel Aviv University

Tel Aviv University
Guttman Administration Bldg. – Room 002
Ramat Aviv, Tel Aviv 69978
Tel. +972 3 640 8055/6401
yedidim@post.tau.ac.il
www.yedidim-tau.org.il

MEXICO

Amigos de la Universidad de Tel Aviv en México

Lomas del Parque No. 216
Col. Lomas de Vista Hermosa
Delegación Cuajimalpa
México D.F., C.P. 05100
Tel. +52 55 22231199
taumex@prodigy.net.mx

NETHERLANDS

Dutch Friends of Tel Aviv University

Ruijs de Perezlaan 10, 2111 WP Aerdenhout
Tel. +31 23 544 31 15
m.r.vanderheijden@casema.nl

NORWAY

Norwegian Friends of Tel Aviv University

Bogstadveien 8
Oslo 3
Tel. +47 22 603 190

SOUTH AFRICA

South African Friends of Tel Aviv University

Stenham Client Services Ltd.
Convention Tower, Capetown 8001
Tel. +27 21 418 6750
jonathan.osrin@stenham.com

SWEDEN

Swedish Friends of Tel Aviv University

Langsjohojden 21
S-12551 Alvsjo
Tel. +46 70456 3756
david@feder.se

SWITZERLAND

Swiss Friends of Tel Aviv University

Bahnhofstr. 14
8022 Zurich
Tel. +41 44 211 60 92
mail@tau-swissfriends.ch
www.tau-swissfriends.ch

UK

Tel Aviv University Trust in Great Britain

Ort House
126 Albert Street
London NW1 7NE
Tel. +44 207 446 8790
hazel.davis@tau-trust.co.uk
www.tau-trust.co.uk

Scottish Friends of Tel Aviv University

Leslie Wolfson & Co. Solicitors
19 Waterloo Street
Glasgow G2 6BQ
Tel. +44 141 248 4850
gsw@lesliewolfson.co.uk
leslieandalma@yahoo.com

URUGUAY

Asociación de Amigos de la Universidad de Tel Aviv en Uruguay

c/o Bernardo. Faincaig
Calle Agustín de Urtubey 1307
Montevideo 11300
Tel. +598 26285068
bernardofaincaig@hotmail.com

USA

American Friends of Tel Aviv University – National/Northeast Region

39 Broadway – Suite 1510
New York, NY 10006
Tel. +1 212 742 9070
info@aftau.org
www.aftau.org

Southern Region

2201 NW Corporate Boulevard – Suite 106
Boca Raton, FL 33431
Tel. +1 561 995 1147
infosoutheast@aftau.org

Midwest Region

9715 Woods Drive, #1608
Skokie, IL 60077
Tel: +1 312 618 3303
rkruger@aftau.org

Western Region

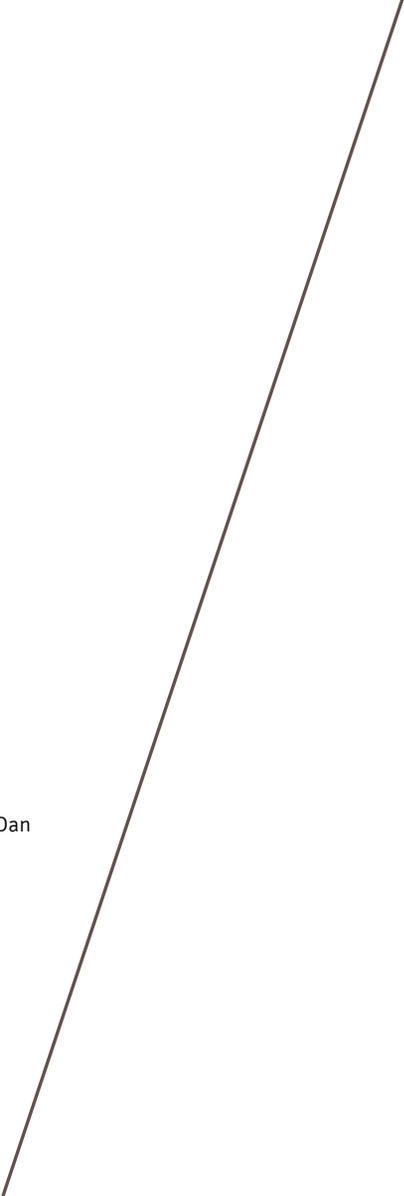
9911 West Pico Boulevard – Suite 1240
Los Angeles, CA 90035
Tel. +1 310 553 5232
infowest@aftau.org

Northern California

63 Beach Road
Belvedere, CA 94920
Tel: +1 415 246 7411
csteinberg@aftau.org



Concept and production: Rava Eleasari
Text: hi-Text/Mimi Tanaman, Louise Shalev,
Ruti Ziv, Tiffany Roberts, Judd Yadid, Sharon Domb
Graphic design: Issi Dvir
Photography: Yoram Reshef
Additional photography: Development and Public Affairs Division
Photography Department/Michal Roche Ben Ami & Michal Kidron, Dan
Porges, Yonatan Blum
Administrative coordination: Sharon Domb
Printing: Shavit Print
Issued by the Development and Public Affairs Division
Tel Aviv University
Ramat Aviv 69978, Tel Aviv, Israel
publicat@post.tau.ac.il
www.tau.ac.il





TEL AVIV UNIVERSITY
תל אביב אוניברסיטה

2013
Annual Report

EARTH/WATER/AIR/FIRE/LIFE

TEL AVIV UNIVERSITY FRIENDS ASSOCIATIONS LEADERSHIP

ARGENTINA

Polly Mizrahi de Deutsch, President
Argentinean Friends of Tel Aviv University

AUSTRALIA

Victor Wayne, President
Australian Friends of Tel Aviv University
(Victoria)

David Dinte, President
Australian Friends of Tel Aviv University
(New South Wales)

AUSTRIA

Dr. Hannes Androsch, President
Austrian Friends of Tel Aviv University

BRAZIL

**Dr. Mario Arthur Adler, President
and Chairman**
Brazilian Friends of Tel Aviv University

**Dr. Esther Kuperman, Head of Chapter,
Rio de Janeiro**
Brazilian Friends of Tel Aviv University

**Dr. Mario Gurvitz Cardoni, Head
of Chapter, Porto Alegre**
Brazilian Friends of Tel Aviv University

CANADA

**Judge Barbara Seal, CM, National
President**
Canadian Friends of Tel Aviv University (CFTAU)

Irwin G. Beutel, President
Canadian Friends of Tel Aviv University
Montreal Chapter

Jeff Wagman, President
Canadian Friends of Tel Aviv University
Toronto Chapter

FRANCE

Prof. François Heilbronn, President
French Friends of Tel Aviv University (AFAUTA)

GERMANY

Dr. h.c. Ernst Gerhardt, President
German Friends of Tel Aviv University

INDIA

Aaron Solomon, President
Indian Friends of Tel Aviv University

ISRAEL

Amnon Dick, Chairman
Israeli Friends of Tel Aviv University

MEXICO

Jaime Murow Troice, President
Mexican Friends of Tel Aviv University

NETHERLANDS

Robert van der Heijden, President
Dutch Friends of Tel Aviv University

NORWAY

Herman Kahan, Chairman
Norwegian Friends of Tel Aviv University

SOUTH AFRICA

Jonathan Osrin, Chairman
South African Friends of Tel Aviv University

SPAIN

Isaac Querub, President
Spanish Friends of Tel Aviv University

SWEDEN

David Feder, President
Swedish Friends of Tel Aviv University

SWITZERLAND

Anette Bollag-Rothschild, President
Swiss Friends of Tel Aviv University

UK

David Levin, Chairman
Tel Aviv University Trust in Great Britain

Leslie Wolfson, Chairman
Tel Aviv University Trust in Great Britain
Scottish Group

URUGUAY

Bernardo Faincaig, President
Uruguayan Friends of Tel Aviv University

USA

Jon Gurkoff, National Chairman
American Friends of Tel Aviv University (AFTAU)

